



**Date:** January 25<sup>th</sup>, 2013

**TO:** Gary Miller, Remedial Project Manager, U S Environmental Protection Agency  
Region 6 Dallas, Texas

Stephen Tzhone, Remedial Project Manager, U S Environmental Protection Agency  
Region 6 Dallas, Texas

**FROM:** Kent Becher, U S Geological Survey Technical Liaison (Hydrologist) to U S  
Environmental Protection Agency Region 6 Superfund Division, Fort Worth and  
Dallas, Texas

**SUBJECT:** Review comments: Draft Remedial Investigation Report San Jacinto River Waste  
Pits Superfund Site

If you have any questions or concerns, please contact me at (817) 253-0356 or by e-mail at  
kdbecher@usgs.gov.

Sincerely,

A handwritten signature in black ink that reads 'Kent D. Becher'. The signature is written in a cursive, slightly slanted style.

Kent Becher

## **General Comment**

The report is very well written with good technical discussion in many of the sections. Figures are very well done. There is a lot of repetition in report and the report could be improved by possibly reorganizing it. The reviewer had difficulties with the review since in a lot of the sections references to tables and figures jumped all over the report.

## **Comments**

1. Page 1-2: Second paragraph, 1<sup>st</sup> sentence minor comment. Suggest removing Docket No. 06-12-10, April 2010. Just leave USEPA. 2010 reference.
2. Page xxv: minor comment. Please change COC to COCs and chemical of concern to chemicals of concern to be consistent with document text.
3. Page xxv: minor comment. Please change COI to COIs and chemical of interest to chemicals of inters to be consistent with document text.
4. Page xxvii: minor comment. Please change PCL to PCLs and protective concentration level to protective concentration levels to be consistent with document text.
5. Page xxviii: minor comment. Please change RAO to RAOs and remedial action objective to remedial action to be consistent with document text.
6. Page 1-6: section 1.5.2, 1<sup>st</sup> sentence, minor comment- Reference refers to SAP not a RI/FS work plan. Please correct sentence or reference.
7. Page 1-7; section 1.5.2.1, last sentence on page, minor comment- Please add reference citation to this sentence.
8. Page 1-9; section 1.5.2.2, 1<sup>st</sup> paragraph, 4<sup>th</sup> sentence, minor comment- Please add reference to addendum one to this sentence.
9. Page xxviii, minor comment- Please change REV to REVs and reference envelope value to reference envelope values to be consistent with document text.
10. Page 1-12: section 1.5.4, 1<sup>st</sup> paragraph, 5<sup>th</sup> sentence- “There is no basis for assuming that represents conditions that exist immediately prior to .....” The sentence following this one is confusing. It seems to contradict this sentence. Suggest removal of this sentence.
11. Page xxv, minor comment- Please change BSAF to BSAFs and biota-sediment accumulation factor to biota-sediment accumulation factors to be consistent with document text.

12. Page xxv, minor comment- Please define CFR where it is first used in the text at first occurrence.
13. Page xxv, minor comment- Please define COPC<sub>SI</sub> in text or remove from acronym list since this acronym doesn't occur in text.
14. Page xxv, minor comment- Remove CTR from acronym list since CTR doesn't appear anywhere in the body of the text.
15. Page xxv, minor comment- ACDP should be removed from acronym list since it isn't used in the text (global search didn't show it anywhere except in acronym list).
16. Page 2-1, Section 2, 1<sup>st</sup> paragraph, last sentence- Provide additional information on why the data couldn't be obtained.
17. Page xxvii, minor comment- Define PCDD where it is first used in document text.
18. Page xxvii, minor comment- PCDF isn't used in the text. Remove from acronym list.
19. Page xxvii, minor comment- RAL isn't used in the text. Remove from acronym list.
20. Page xxvii, minor comment- REV needs to be defined at first use in text.
21. Page xxvii, minor comment—TEF needs to be defined at first use in text.
22. Page xxix, minor comment- TEQ<sub>DF,B</sub>, TEQ<sub>DF,F</sub>, TEQ<sub>DFP</sub>, TEQ<sub>P,B</sub>, TEQ<sub>P,F</sub> and TRV need to be defined at first use in text.
23. Page xxx, minor comment- WCID needs to be defined at first use in text.
24. Page xxvi, minor comment- Please change DQO to DQO's and data quality objective to data quality objectives to be consistent with document text.
25. Page xvii, minor comment- Please add QC to list of acronyms since it is listed in the text on page 2-3.
26. Page xxvii, minor comment- Please change PRG to PRGs and preliminary remediation goal to preliminary remediation goals to be consistent with document text.
27. Page xxvii, minor comment- Please change tetrachlorodibenzo-p-dioxin to 2,3,7,8-tetrachlorodibenzo-p-dioxin to be consistent with document text.
28. Page xxvii, minor comment- Please change tetrachlorodibenzofuran to 2,3,7,8-tetrachlorodibenzo-p-dioxinfuran to be consistent with document text.

- 29.** Figures 2-2- Sampling events described in text are based on multiple sampling events. The figures are nicely done, but dates for sampling events need to be added to figures, so a reader can determine where samples were taken and when.
- 30.** Page xxvii, minor comment- Please change NSR to NSRs and net sedimentation rate to net sedimentation rates to be consistent with document text.
- 31.** Page xxvi, minor comment- Please change FCA to FCAs and fish collection area to fish collection areas to be consistent with document text.
- 32.** Table 2-4 and page 2-23, first bullet- Text and table don't match. According to text there would be 13 samples not 14 as indicated in table.
- 33.** Table 2-4 and page 2-23, second bullet- For consistency with sampling event 1, please add soil collection intervals in this bullet and following bullets.
- 34.** Section 2.1.2.3- Add figure or reference a figure to text to show locations of soil investigations.
- 35.** Page 2-26, second paragraph, second sentence "...development was conducted until turbidity levels were as low as reasonably feasible." The sentence should state well development was completed following procedures within the groundwater sampling and analysis work plan. This same comment applies to this same statement made in Section 2.1.2.4.2.
- 36.** Page 2-26, section 2.1.2.4.2, first paragraph, second sentence- Reference for Miller 2011g is either mislabeled or missing from reference sentence. Please revise.
- 37.** Page 2-31, second paragraph, first sentence-. The EPA 2009 document in regards to screening of dioxins needs to be updated to the EPA 2012 guidance.
- 38.** Page xxv minor comment- Please change ARAR to ARARs and applicable or relevant and appropriate requirement to applicable or relevant and appropriate requirements to be consistent with document text.
- 39.** Page 2-31, second paragraph, second sentence- Reference RA Memo: Anchor QEA 2012 a, c. There isn't an Anchor QEA 2012c in the reference section. Please revise.
- 40.** Page xxv, minor comment- Please change COPC<sub>E</sub> to COPC<sub>ES</sub> and chemical of potential ecological concern to chemicals of potential ecological concern to be consistent with document text.

- 41.** Page xxv, minor comment- Please change COPC<sub>H</sub> to COPC<sub>HS</sub> and chemical of potential concern for human health to chemicals of potential concern for human health to be consistent with document text.
- 42.** Page 2-38, section 2.2.1, second paragraph, first sentence- Please verify the number of samples collected. Figure 2-5 location counts don't agree with text counts.
- 43.** Page 2-40, first bullet, fourth line, minor comment- Please add space in front of 20.
- 44.** Page 2-40, third bullet, second sentence- This comment has been made numerous times in the past. Suspended sediment wasn't analyzed at the site, however, suspended solids were measured. A published document discussing the differences between suspended solids and suspended sediment in regards to sediment transport has been previously provided.
- 45.** Page 2-42, Tissue, minor comment- Move text for Figure 2-7 under Figure 2-6 to keep figures in the chronological order.
- 46.** Page xxvii, minor comment- Please change TEF to TEFs and toxicity equivalency factor to toxicity equivalency factors to be consistent with document text.
- 47.** Page 2-48, section 2.5.1, bullets- Suggest adding "for mammals" to the end of each bullet. The TEQ definitions for birds and fish should be added here as well.
- 48.** Page 2-49, Concentration Units- abbreviated units should be added to acronym list or a unit table should be provided at the beginning of document.
- 49.** Page 2-49, Section 2.5.3, first bullet, minor comment- This is the first use of dry weight in text, should define acronym for use for the rest of the text.
- 50.** Page 3-1, section 3.1.1, first paragraph, second sentence- The text indicates there is some noticeable relief on figure 3-1 in two north-south drainages in the western cell. The reviewer doesn't see this on figure 3-1. Please add labels (ie location of western cell) to figure to correspond with the text.
- 51.** Page 3-6, section 3.3.1- Please include map that shows the river segments discussed in text.
- 52.** Page 3-7, second paragraph, second sentence, minor comment- Reference show TDH 2001 as TDH 2001 b. Please edit reference.
- 53.** Page 3-7, third paragraph- Provide map to show locations of the reservoirs.
- 54.** Page 3-12- A discussion of vertical conductivity should be discussed in this section. Based on the heads of the wells it appears there is the potential for a downward gradient.

It doesn't appear that the Beaumont Clay is acting as a confining bed. Based on the chemical nature of the COCs and the results from the wells it is doubtful that there is any vertical migration of contaminants into deeper groundwater, however, the hydrology does indicate vertical migration is possible.

55. Figure 3-10- Cross sectional figures are very well done, but borehole SJSB005 extends passed the x-axis on this figure. Suggest editing to figure to get it to fit within the plot boundaries.
56. Page 3-14, Gray silty sand, last sentence, minor comment- NAVD 88 needs to added to acronym list.
57. Page 3-19, last paragraph, minor comment- A space is needed after the comma following the HGAC 2010 reference.
58. Page xxv, minor comment- Please change CDD to CDDs and chlorinated dibenzo-p-dioxin to chlorinated dibenzo-p-dioxins to be consistent with document text.
59. Page xxvi, minor comment- Please change EPC to EPCs and exposure point concentration to exposure point concentrations to be consistent with document text.
60. Page 4-7, section 4.2.2, second paragraph- Mean BEHP is shown to be 12 in text, but table 4-6 mean BEHP is shown to be 11. Please revise to proper value.
61. Tables 4-9 and 4-10- Add Cedar Bayou to table titles, so a reader knows where the background crab samples were collected.
62. Page 4-8, section 4.2.3.1, first paragraph, last sentence- "..... total PCBs (as sum of all congeners) was about 3 times greater as that in edible tissues." Reviewer tried to confirm this statement, but couldn't from information in tables. Please explain further (ie provide sums for each).
63. General statement about section 4 tables. If there are COPC's with no detections then the values for minimum, maximum, or mean should be flagged in tables to indicate censored data (half of detection limits). In addition, any minimum values shown with detected COPC's that were set to half of the detection limit should be flagged in tables. Please revise tables.
64. Page 4-13, 4.3.4.2, first sentence- ".....total PCBs with nondetects set to zero or set to one-half the detection limit....". If there are detection levels from lab analysis then there should never be any value set to zero. Add text in this section that describes why values were set to zero.
65. Page 4-18 and Table 4-27, section 4.5.1, second paragraph- This section lists COPCs that are statistically significant than background. However, only a few of the COPCs that

show statistical significant are listed in text. Please add other compounds that show statistically significant differences to text.

66. Page 4-19, Blue Crab, second paragraph- Discussion in text goes from Table 4-29 to Table 4-34. Table numbers should correspond with text order. Since this section discusses Blue Crab background comparison, then table 4-34 should be table 4-30.
67. Page 4-20, section 4.5.3.2, first paragraph, second sentence- Add dioxins and furans to second sentence (table 4-30 show statistical significant).
68. Page 4-20, section 4.5.3.2, first paragraph, second to last sentence- Text needs to be added here to discuss whole body catfish. Dioxins, PCBs, arsenic, and other compounds had significantly different values than background. Also, figure 4-31 needs to be introduced somewhere in the text.
69. Page 4-21, section 4.5.3.4, first paragraph (table 4-33) - This section is missing at least one of the COPCs that exceeds background and needs to be updated to reflect table 4-33.
70. Page 5-7, third paragraph- Reference to figure 5-4 needs to be added to text somewhere in this paragraph.
71. Page 5-8, section 5.2.1.1.1, first paragraph, third sentence- Sentences states highest or average (or should state mean to stay consistent with tables) was 5,480, but table 5-1 shows a mean of 6,680 ng/kg for 2,3,7,8- TCDF . Revise table or text with correct value.
72. Page 5-9, top of page- Sentences states highest or average (or should state mean to stay consistent with tables) was 15,300 ng/kg for 2,3,7,8- TCDF, but table 5-2 shows a mean of 17,000. Revise table or text correct value.
73. Page 5-13, Section 5.3.1.2.3- Table 5-3 needs to be referenced in this section.
74. Page 5-13, Section 5.3.1.2.3, second paragraph, second sentence- The reviewer tried several times to understand sentence, but couldn't figure out the point comparing  $TEQ_{DF,M}$  and  $TEQ_{P,M}$  . Figure 5-1 shows value at surge to be 66.1. Sentence needs to be revised, so a reader can understand the main point of the sentence.
75. Page 5-26, section 5.2.3.3.1, first paragraph, last sentence- It appears there may have be some matrix interference or laboratory issues in regards to the analysis of the PCB Aroclors. When detection limits are almost three orders of magnitude different from samples collected out of the same hole then a red flag goes up. Please provide an explanation (lab chemist) on why there were so many problems with the Aroclor analysis.
76. Page 5-28, first sentence- This data should be mapped, so a reader can see for themselves that distributions mirror the  $TEQ_{P,M}$  pattern.

- 77.** Figures 5-12 and 5-13 don't appear to be referenced anywhere in the text. Include references to figures in text.
- 78.** Page 5-31 and figure 5-17- This section describes box plots shown on figure 5-17. The reviewer agrees that box plots are similar when comparing site perimeter and downstream data; however, it is very obvious from the plots that there is orders of magnitude difference in median TEQ compared to data upstream of the site. Text should be added to this section to discuss this part of the data analysis.
- 79.** Section 6 tables- Add south impoundment to titles.
- 80.** Page 6-28, second paragraph, first sentence- Miller reference is missing the proper suffix for this reference. Please revise.
- 81.** Page 8-2, References- Anchor QEA, 2011f "Radio.....Plan" isn't referenced anywhere in the text of the report. Remove reference if not needed.
- 82.** Page 8-3, References- Anchor QEA and Integral, 2010d "Draft .....Plan" isn't referenced anywhere in the text of the report. Remove reference if not needed.
- 83.** Page 8-4, References- Reference section missing reference for ASTM D-5084. Please add.
- 84.** Page 8-12 References- Miller, G., 2011d reference isn't anywhere in the text. Either add reference to proper section or remove reference from report.
- 85.** Page 8-12 References- Miller, G. 2012b reference isn't anywhere in the text. Either add reference to proper section or remove reference from report.
- 86.** Page 8-12 References- Miller, G. 2012c reference isn't anywhere in the text. Either add reference to proper section or remove reference from report. In addition, this reference is duplicated in reference section. Please remove extra reference.
- 87.** Page 8-14 References- Sampson and Keith, 2010 reference is not mentioned anywhere in the text. Please revise.
- 88.** Page 8-15 References- TCEQ 2010b and 2011a references are not mentioned anywhere in the text. Please revise.
- 89.** Page 8-18 References- USACE 2010 reference is not mentioned anywhere in the text. Please revise.
- 90.** Page 8-19 References- USEPA 1999 reference is not mentioned anywhere in the text. Please revise.



- 91.** Page 8-21 References- USEPA 2009c and USEPA2009d references are not mentioned anywhere in the text. Please revise.
- 92.** Page 8-22 References- USEPA 2012h reference is not mentioned anywhere in the text. Please revise.
- 93.** Page 8-23 References- Voskov 2010 reference is not mentioned anywhere in the text. Please revise.